ENCROACHMENT PERMIT - UNCASED HIGH PRESSURE NATURAL GAS PIPELINE SPECIAL PROVISIONS

TR-0158 (NEW 04/2002)

In accordance with the Departments Encroachment Permits Manual, Section 623, requires that all new pipeline installations with a diameter of six inches or greater and transversely cross a State highway rights-of-way shall be encased.

In compliance with Memorandum dated November 9, 1994, “Exception to Policy” - Uncased High-pressure Natural Gas Pipelines. The Department will allow the installation of uncased natural gas pipelines crossings in specific circumstances. The Departments primary concerns are for public safety, the integrity of the highway facility and the mechanical protection of the pipeline itself. It is necessary to limit the number of requests for transverse natural gas transmission pipeline crossings, without casings, to locations where the following conditions are met:

UNG 1.

The pipeline owner agrees that the crossing will be designed for construction in accordance with the Code of Federal Regulations, Title 49, Part 192, and/or the California Public Utilities Commission General Orders No. 112-D with respect to natural gas pipelines. The crossing design shall be comprehensive in all respects including but not limited to " material specification, pipe wall thickness determination, coating selection, and cathodic protection. Soil conditions at each site shall be analyzed for characteristics that may prove harmful to the protective pipe coating. This analysis shall be used by the pipeline owner in selecting a protective pipe coating sufficient to withstand the potential for gouging or peeling during the boring and jacking operation, or other methods approved by Caltrans. The final condition of the coating will be determined by the pipeline owner through monitoring of the boring and jacking operation, visually inspecting the exiting initial pipe segment, and electrical testing by an engineer or technician with expertise in cathodic protection. The test data shall be noted on the as-built drawings. Remedial action will be taken if the condition of the coating is such that cathodic protection is not practical.

UNG 2.

The minimum depth of cover within State highway right of way, from the final ground line (finished grade or original ground) to the top of the proposed gas carrier pipeline, is two and one-quarter meters (7' - 6"). If the location is such that it is not practical to achieve the above depth of cover, then an engineered protective cover (such as a reinforced concrete structure) may be provided outside of pavement areas in lieu of casing. At no time shall the minimum depth of cover be less than one and one-tenth meters (42").

UNG 3.

The permit specifies that the uncased gas carrier pipeline shall, as a minimum, be designed for a Class 3 Location (Code of Federal Regulations referenced above) for hard surfaced roads, highways, public streets, and railroads. (See attached Excerpts from the Code of Federal Regulations, Design Factor to be Used for Natural Gas Pipelines.)

UNG 4.

The existence of the crossing is adequately identified by signing at the right-of-way line, with at least one identifying sign, which is visible from the roadway in each direction of travel.

UNG 5.

The pipeline owner agrees to provide as-built drawings at completion of the pipeline crossing, with a letter certifying that the pipeline was installed properly and in accordance with the permit plans (including approved changes to the permit plans), and meets industry and regulatory standards for such installation.

UNG 6.

All other applicable requirements of Section 623 of the Encroachment Permits Manual are satisfied.

UNG 7.

All permit applications requesting installations of such uncased natural gas pipeline crossings six inches or larger in diameter and meeting the above requirements may be approved by the highway district. All permit applications for uncased pipeline crossings deviating from the above requirements shall be submitted to the Chief of the Office of Project Planning and Design for exception approval in the usual manner.

EXCERPTS FROM CODE OF FEDERAL REGULATIONS

DESIGN FACTORS TO BE UTILIZED FOR NATURAL GAS PIPELINES

In the design of steel natural gas pipelines the Minimum Yield Strength for the grade of steel used is reduced by a Design Factor (F). This Design Factor is determined by the type of road being crossed by the pipeline and a Class Location established by Code of Federal Regulations, Title 49, Part 192 (Office of the Federal Register, 1990)

The Class Location depends on the occupancy of buildings or activities within an area that extends 660 feet (200 m) either side of the pipeline centerline for a continuous 1 mile (1.6 km) segment of the pipeline. There are four Class Locations as follows:

Class 1. A location that has 10 or less buildings intended for human occupancy.

Class 2. A location that has more than 10 but less than 46 buildings intended for human occupancy.

Class 3. a) Any location that has 46 or more buildings intended for human occupancy; or

b) Area where pipeline lies less than 300 feet (91 m) of either a building or a small well defined outside area (such as a playground, recreation area, outdoor theater, or other place of public assembly) that is occupied by 20 or more persons on at least 5 days a week for 10 weeks in any 12-month period. (The days or weeks need not to be consecutive).

Class 4. Location where buildings of four or more stories are prevalent.

The design factor used for a specific Class Location also depends on the kind of road involved as indicated on the following Table.

DESIGN FACTOR (F)

	CLASS LOCATION			
TYPE OF THOROUGHFARE	**1**	**2**	**3**	**4**
Privately owned roads	0.72	0.60	0.50	0.40
Unimproved public roads	0.60	0.60	0.50	0.40
Hard surfaced roads, highways public streets, and railroads	0.60	0.50	0.50	0.40

Example: A pipe made ofX42 grade of steel which has a Minimum Yield Strength (MYS) of 42,000 psi used in a Class 4 location at a hard surface road crossing would be designed using a reduced Minimum Yield Strength, by applying a Design Factor of 0.4, of 16,800 psi.